# PCG-XG18

# **SERVICE MANUAL**

US Model Canadian Model





**NOTEBOOK COMPUTER** 



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All other trademarks are trademarks or registered trademarks of their respective owners. Other trademarks and trade names may be used in this document to refer to the entitles claiming the marks and names or their produces. Sony Corporation disclaims any proprietary interest in trademarks and trade names other than its own. <u>Caution Markings for Lithium/Ion Battery</u> - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.

Dispose of used battery promptly.

Keep away from children.

CAUTION: Changing the back up battery.

- Overcharging, short circuiting, reverse charging, multilation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.

#### Service and Inspection Precautions

#### 1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents

#### 2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the  $\triangle$  mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

# 3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

#### 4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

#### 5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

#### 6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

#### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE A SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

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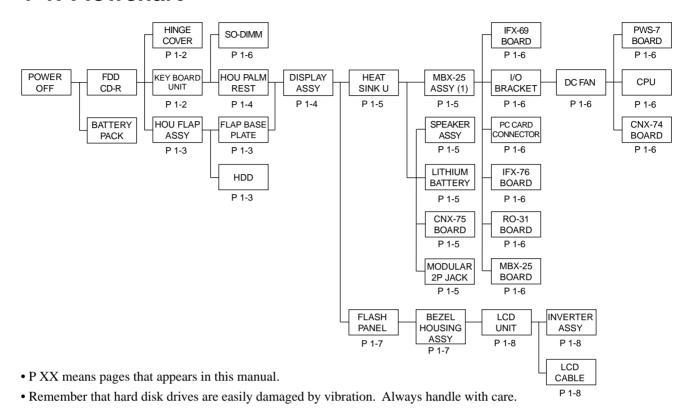
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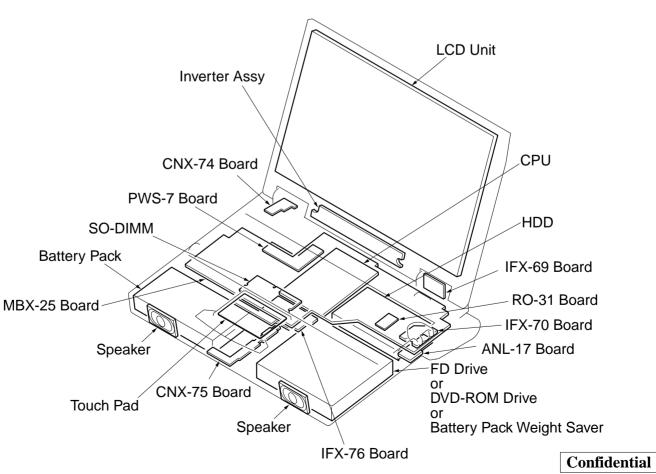
• Abbreviations

UC : US model / Canadian model

#### 1-1. Flowchart



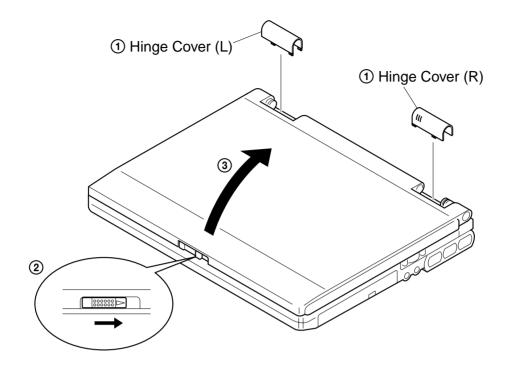
# 1-2. Main Electrical Parts Location Diagram



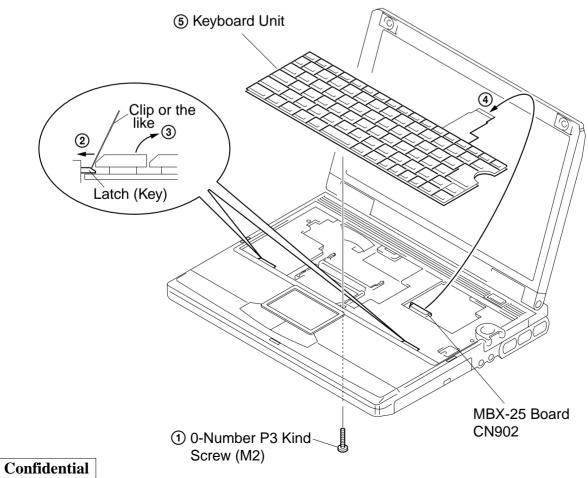
1-1

# 1-3.Removal

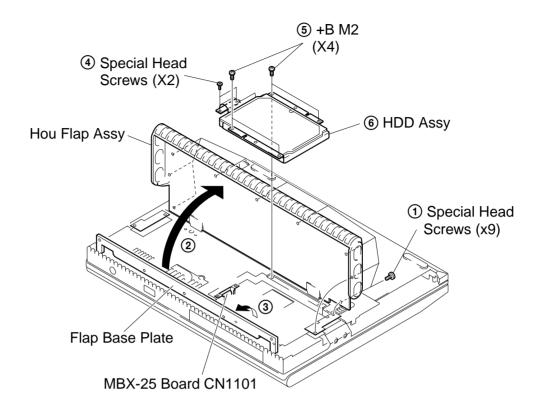
## 1. Hinge Cover



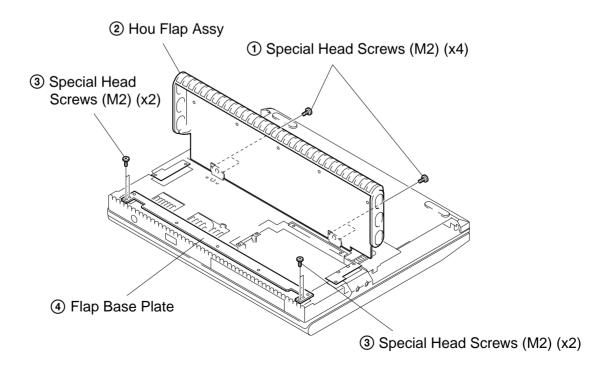
## 2. Keyboard Unit



#### 3. HDD Assy

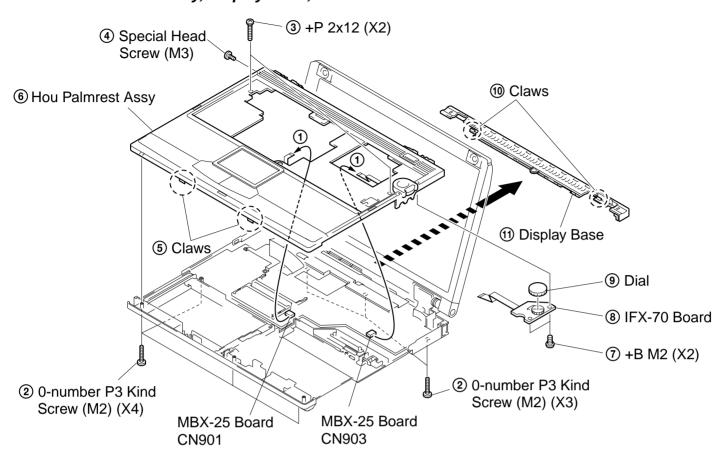


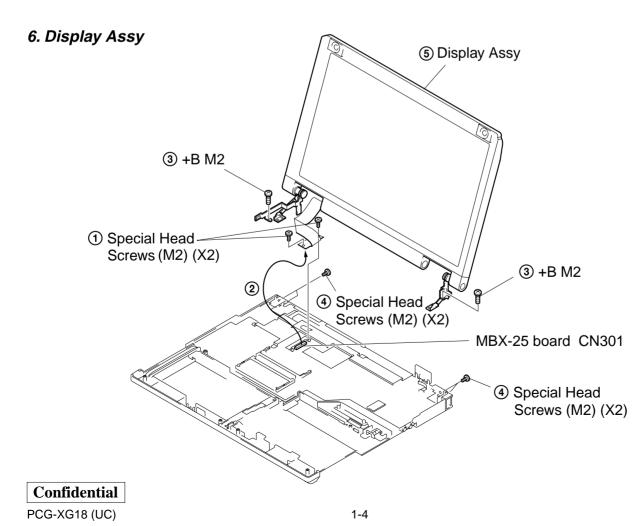
#### 4. Hou Flap Assy, Flap Base Plate



1-3

#### 5. Hou Palmrest Assy, Display Base, IFX-70 Board





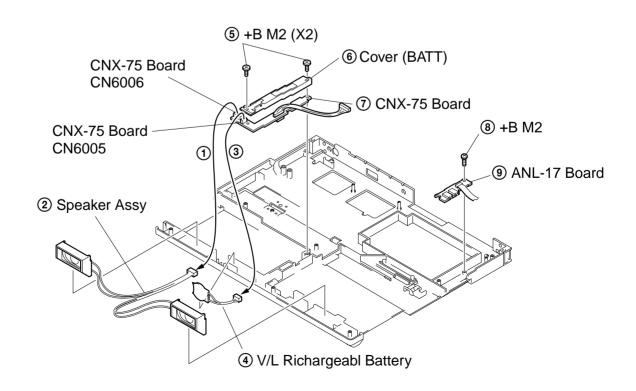
# 7. MBX-25 Board Assy (1) ② +B2x12 ③ Heat Sink U ③ Heat Sink U ⑥ +B M2 ① MBX-25 Board Assy MBX-25 Board CN1152 ⑥ +B M2 IFX-76 Board CN8501 ① Modular Jack

8. Speaker Assy, V/L Richargeable Battery, CNX-75 Board, ANL-17 Board

① Cover (FFC)

MBX-25 Board

CN1501



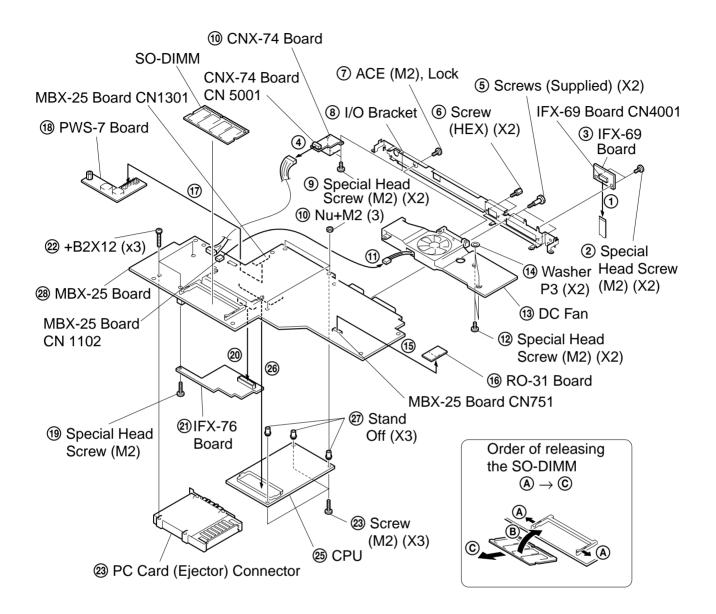
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MBX-25 Board

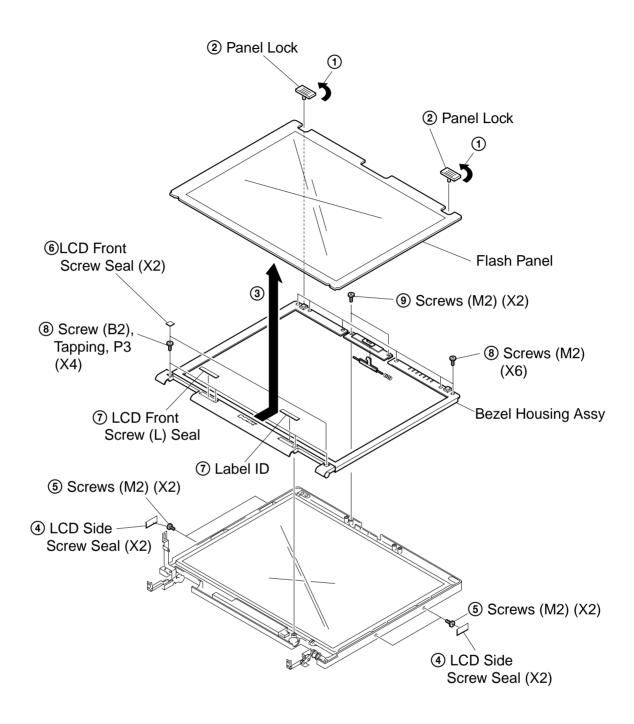
CN551

4

#### 9. MBX-25 Board Assy (2)

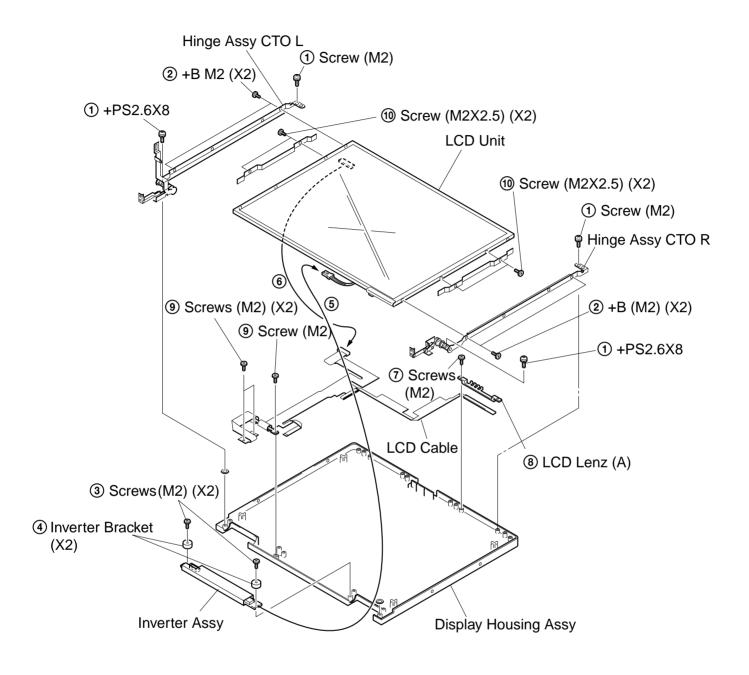


#### 10. Flash Panel, Bezel Housing Assy



1-7

#### 11. LCD Unit, Inverter Assy, LCD Cable



# 2-1. Required Tools and Peripheral Devices

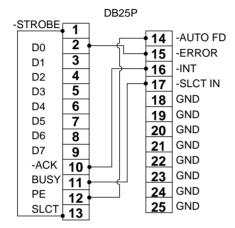
	Tools and Peripheral Devices	Test Items	
1	Parallel Loopback Tool	Parallel Port (printer) test	
	Specified Loopback Tool (Refer to next page)		
2	Stereo microphone	- Audio related tests	
3	Headphone		
4	56K Modem and Line Simulator	Modem test	
5	VGA Monitor and Monitor Cable	VGA output test	
6	PC Card Tester	PC Card test	
	PCCtest 450 Made by Sycard Corp.	PC Card test	
7	PCG-X series VAIO for IrDA Function/IEEE1394 Test	IrDA/IEEE1394 test	
8	Mini Docking Station PCGA-PSX1 for Docking Connector Test	Test of docking PCI connector	
9	DVD-ROM Bay supplied	DVD-ROM test	
10	External FDD and supplied FDD Cable	FDD test	
11	Diagnostics FD Media	(Diagnostics starting software)	
12	Diagnostics CD-ROM Media	(Diagnostics software)	
13	Battery supplied	Battery related tests	
14	AC Adaptor supplied	(Power supply for diagnostics)	
15	HDD	HDD related tests	

#### [Reference] On Parallel Loopback Tool

• The serial loopback tool and the parallel loopback tool are necessary for diagnostics of the serial communication line and the parallel communication line. Fabricate the serial loopback tool and the parallel loopback tool locally referring to the connection diagrams shown below.

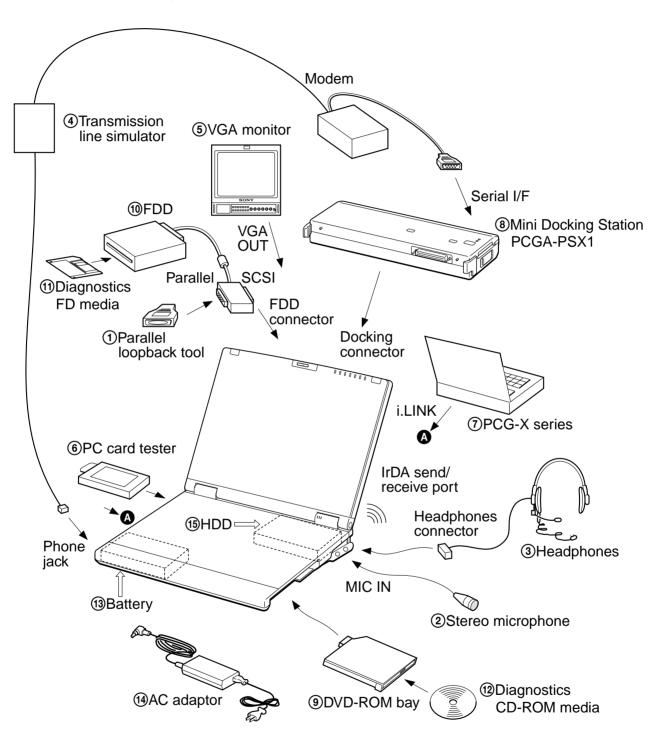
#### PARALLEL LOOPBACK CONNECTOR CONNECTION DIAGRAM

- Connector Types DB25P(Male)
- **NOTE:** The black round mark "•" indicates soldering.
- Interface Standard Centronics
- Loopback Status to Commands



# 2-2. Tools and Peripheral Device Connection

System Connection Diagram



# 2-3. How to Start the Diagnostics

**Precaution:** The supplied floppy disk containing the diagnostics program can be damaged because it will be written the Log and used as FDD read-write test. Be sure to make a backup of the diagnostics floppy disk and use a backup disk for diagnostics.

#### Starting up the diagnostics

- Specify the FD as the startup drive so that the system boots up from the diagnostics FD.
- Insert the diagnostics CD-ROM media into the DVD-ROM drive. Insert the diagnostics FD into the FD drive. Start up the FD first.
- Attach normally the FD drive to the connector for Mini Docking station, and DVD-ROM drive to the device bay of the main unit. Mini Docking station is necessary for some tests, or some tests are performed without inserting a DVD-ROM.
- After the start menu appears, select the item to execute. When PASS is displayed as the result of diagnostics, the test is ended normally. When FAIL is displayed, the test is ended with some errors.

#### 2-4. Test Items

The test items are shown below.

#### 2-4-1. Test Item LIst (Tests Performed from DOS)

- 1. Check ROM Information
- 2. Audio test group
  - (1) Audio test (ALL)
  - (2) Audio test (CD-DA test)
  - (3) Audio test (Speaker test)
- 3. Battery test group
  - (1) Battery 1 test
  - (2) Battery 2 test
  - (3) Fan test
- 4. CD-ROM test
- 5. FDD test
- 6. HDD test
- 7. Keyboard test
- 8. LED test
- 9. Main memory test
- 10. Main System test
- 11. Touch pad test
- 12. Parallel loopback test
- 13. PC Card test
- 14. IEEE1394 Interface test
- 15. Dock PCI connector test
- 16. IrDA test
- 17. Video test
- 18. GUID check
- 19. Multipurpose bay switch test
- 20. Jogdial test

#### Confidential

- 21. Aging (Short time)
- 22. Aging (Long time)
- 23. Aging with HDD test
  - (1) Aging (Short time) HDD test
  - (2) Aging (Long time) HDD test

#### 2-4-2. Test Item LIst (Performed from Windows)

1. Modem loopback test

#### 2-4-3. Contents of Tests (Tests Performed from DOS)

1. Check ROM Information

Indicates the BIOS which is currently used.

#### 2. Audio test group

Tests the audio related items.

(1) Audio test (ALL)

Tests all items. Audio tool is necessary.

Use the connector fin accordance with instruction displayed.

(2) Audio test (CD-DA test)

Play back the audio track of the diagnostics CD.

(3) Audio test (Speaker test)

Tests speaker. (Tests sound source of PCM and FM, too.)

#### 3. Battery test group

Performs charging and discharging test of a battery.

A used battery with 30% to 80% already charged battery is necessary.

(1) Battery 1 test

Tests the battery 1.

(2) Battery 2 test

Tests the battery 2.

When performing the test, start up the PCG-XG18 without connecting the DVD-ROM drive to the device bay 2. (CD-ROM is not necessary.)

(3) Fan test

Tests the fan.

#### 4. CD ROM test

Tests the CD-ROM.

#### 5. FDD test

Tests the FDD. Note that the diagnostics floppy disk can be damaged when this test ends in fail.

#### 6. HDD test

Tests the HDD.

#### 7. Keyboard test

Tests the keyboard. Start pressing the keyboard surely from an end of a keyboard.

The Fn key is disabled. Press Fn+End instead.

#### 8. LED test

Check that the LEDs start illuminating from the left of the LEDs.

#### 9. Main memory test

Tests the memory.

#### 10. Main system test

Tests the entire system including CPU, MATH and DMA.

#### 11. Touch pad test

Tests the touch pad. Move the cursor inside the white square mark ( $\square$ ) and operate the system in accordance with instruction displayed.

#### 12. Parallel loopback test

Tests the parallel port. The jig is necessary.

Connect the supplied FDD cable to the connector of FDD, and connect the tool to the parallel port at the rear side of the FDD cable.

#### 13. PC Card test

Tests the PC card. The PC card tester jig is necessary.

Insert and remove the PC card tester in accordance with instruction displayed.

#### 14. IEEE1394 Interface test

Tests the IEEE1394 communication.

#### 15. Dock PCI connector test

Tests the parts related to the PCI signal wire of the connector form docking of the PCG-XG18.

Set the PnP to "No" on the Bios Setup screen.

To perform this test, the Mini Docking Station is necessary.

#### 16. IrDA test

Tests the IrDA communication.

To perform this test, the PCG-X series computer is necessary for communication.

#### 17. Video test

Tests the circuit blocks related to the video display. Output image from the VGA-OUT connector for test.

NTSC television is necessary.

Connect the VGA-OUT connector and the NTSC television to confirm that color bars appear.

#### 18. GUID check

Display GUID.

#### 19. Mulitipurpose bay switch test

Tests the switch of mulitipurpose bay.

#### 20. Jogdial test

Tests the jogdial.

#### Confidential

#### 21. Aging (Short time)

Executes the memory and main system tests repeatedly. It takes about fifteen minutes.

#### 22. Aging (Long time)

Executes the memory and main system tests repeatedly. It takes about ten hours.

#### 23. Aging with HDD test

#### (1) Aging (Short time) HDD test

Executes the memory and main system tests repeatedly including the HDD test. Contents of HDD are destroyed when this test is performed. It takes about four hours.

#### (2) Aging (Long time) HDD test

Executes the memory and main system tests repeatedly including the HDD test.

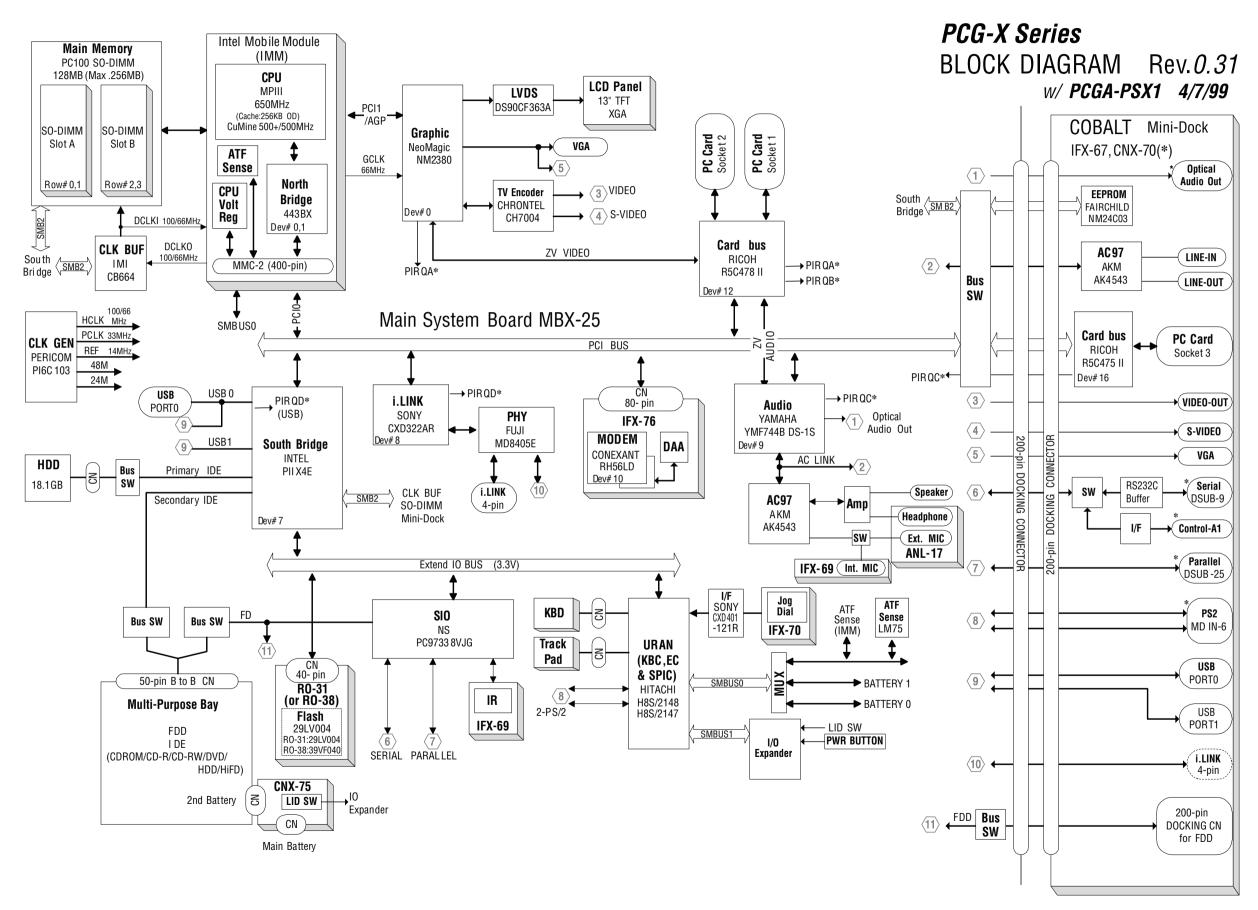
Contents of HDD are destroyed when this test is performed. It takes about ten hours.

#### 2-4-4. Contents of Test (Performed from Windows)

#### 1. Modem loopback test

Tests the data send/receive between modem and computer. The jig modem is necessary. Connect the jig modem to the modem port of the PCG-X series VAIO.

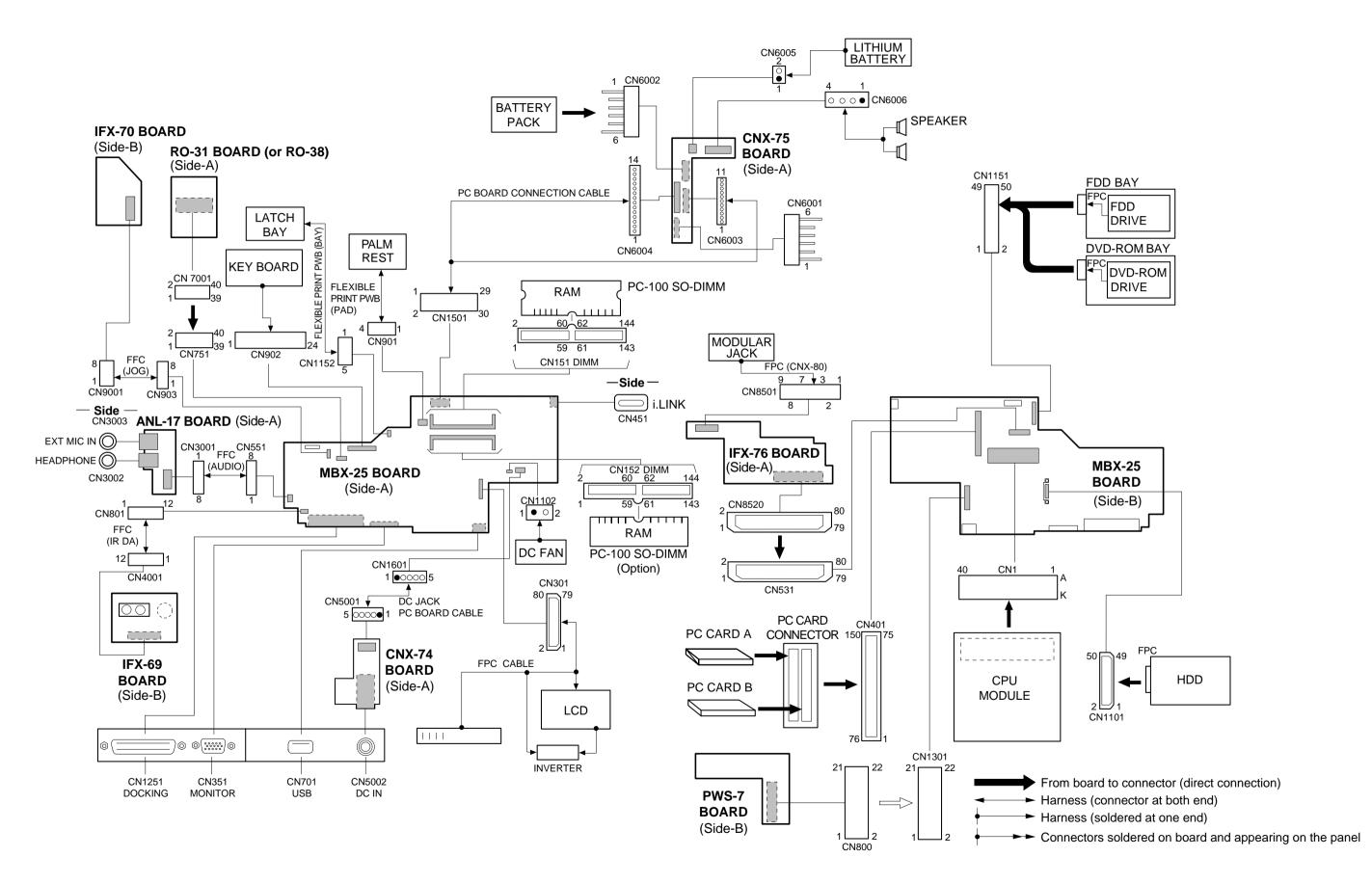
# CHAPTER 3. BLOCK DIAGRAM



3-1

# CHAPTER 4.

# FRAME HARNESS DIAGRAM



# EXPLODED VIEWS AND PARTS LIST

#### NOTE:

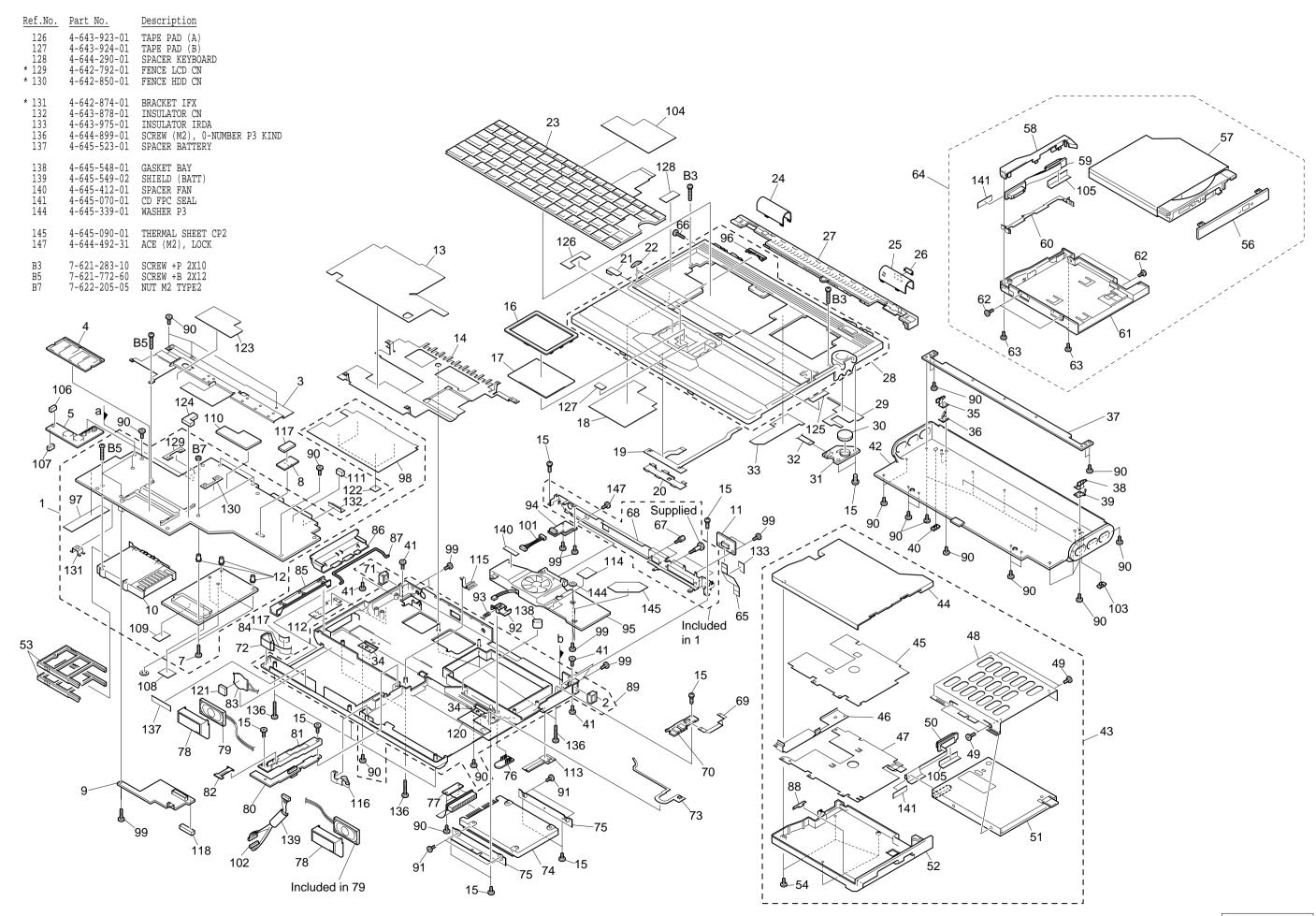
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

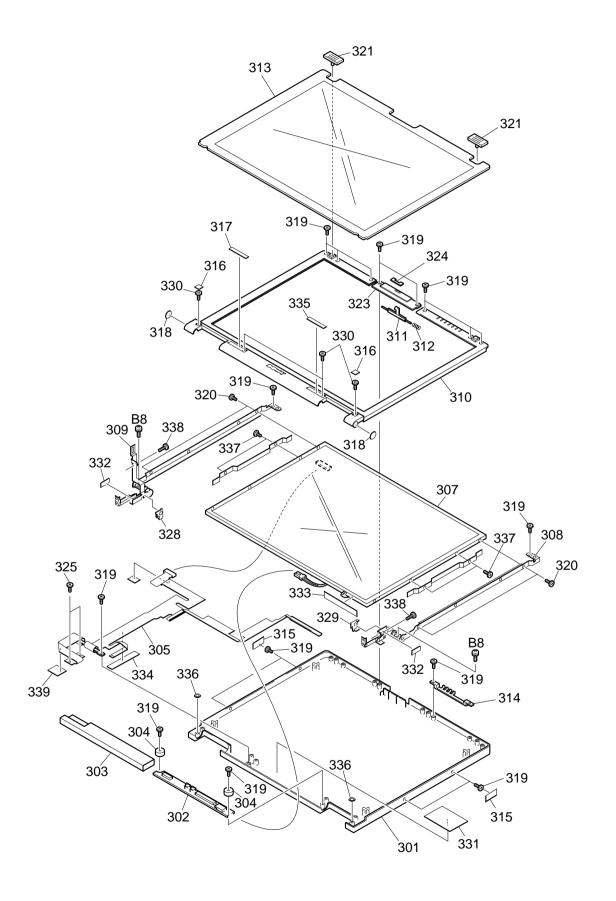
Ne les remplacer que par une pièce portant le numéro spécifié.

# 5-1. Main Section

Ref.No.		Description		Part No.	
1	A-8046-811-A	MBX25 (P3 650) 1220 ASSY (S) (MBX-25 BOARD/CPU MODULE (P3 650 SS)) BLOCK HOOK R HEAT SINK U IC KMM464S1724BT1-FL (128MB)	63 64	4-642-229-11 A-8022-000-A	TAPPING, 0 NUNBER SPECIAL HEAD OVER ASSY, MAIN
2	4-642-860-01	BLOCK HOOK R	65	1-791-145-11	FFC (IRDA) SCREW (M2), + SPECIAL HEAD
^ 3 4	8-759-665-37	HEAT SINK U IC KMM464S1724BT1-FL (128MB)	* 67	4-635-966-01	SCREW (MZ), + SPECIAL HEAD SCREW (HEX)
5	A-8056-318-A	COMPLETE PWB PWS-7	* 68	4-642-776-01	BRACKET I/O
7 8	3-740-546-21 A-8056-687-A	SCREW (M2) COMPLETE PWB RO-31 (A3) COMPLETE PWB IFX-76 (J) CONNECTOR, PC CARD (EJECTOR) COMPLETE PWB IFX-69	69 70	1-791-146-11 A-8056-329-A	FFC (AUDIO) COMPLETE PWB ANL-17
9 10	A-8056-695-A	COMPLETE PWB IFX-76 (J)	71	4-642-845-01	BLOCK HOOK L
11	A-8056-331-A	COMPLETE PWB IFX-69	72	1 701 140 11	DWD /DAY ELEVIDLE DDING
12	4-637-921-02	STAND OFF	74	1-791-148-11	HDD (18.1GB)
* 13 * 14	4-643-383-01 4-642-787-01	INSULATOR HEAT (B) HEAT SINK B	75	4-642-777-01 4-642-781-01	HD BRACKET (A) BUTTON BAY LATCH
15 16	4-642-852-31 4-642-794-03	+B M2 X5 COVER (PAD)	77	1-791-144-11	PWB, (HDD) FLEXIBLE
17	1_772_520_11	COMPLETE PWB IFX-76 (J) CONNECTOR, PC CARD (EJECTOR) COMPLETE PWB IFX-69  STAND OFF INSULATOR HEAT (B) HEAT SINK B +B M2 X5 COVER (PAD)  PAD, TOUCH INSULATOR PALM (L) PWB, (PAD) FLEXIBLE PRINT PLATE (SW) SPRING (PAD), PLATE	* 78	4-643-215-01	CUSION SPEAKER
18	4-643-379-01	INSULATOR PALM (L)	80	A-8056-325-A	COMPLETE PWB CNX-75
19 * 20	1-791-147-11 4-642-799-01	PWB, (PAD) FLEXIBLE PRINT PLATE (SW)	81 82	4-642-783-01 4-642-784-01	COVER (BATT) LATCH DETECTOR
* 21	4-642-842-01	SPRING (PAD), PLATE	83		
22	4-642-954-01	CUSHION (PALM)	84	1-791-186-12 4-642-876-01 4-642-778-01 4-642-779-01	FPC (CNX-80)
23 24	4-642-795-01	COVER HINGE (L)	85 86	4-642-876-01	DOOR BATTERY
25 26	4-642-796-01 4-642-798-01	COVER HINGE (R) LENS IRDA	87	4-642-779-01	SPRING HD DOOR
27	4-642-789-01	PAD, TOUCH INSULATOR PALM (L) PWB, (PAD) FLEXIBLE PRINT PLATE (SW) SPRING (PAD), PLATE  CUSHION (PALM) KEYBOARD UNIT COVER HINGE (L) COVER HINGE (R) LENS IRDA  DISPLAY BASE ASSY HOU PALMREST INSULATOR PALM (R) DIAL COMPLETE PWB IFX-70	88	4-642-816-01 x-4622-286-3	FD LENZ
28	X-4622-287-2	ASSY HOU PALMREST	90	4-641-726-21	SCREW (M2), SPECIAL HEAD
29 30	4-643-380-01 4-642-855-01	INSULATOR PALM (R) DIAL	91	4-635-301-01 4-642-780-01	ASSY HOU BOTTOM SCREW (M2), SPECIAL HEAD SCREW M3X4 LATCH BAY
31	A-8056-327-A	COMPLETE PWB IFX-70  FFC (JOG) INSULATOR PALM (M) HINGE FLAP ASSY FLAP LOCK L LOCK PLATE L	93	4-642-782-01	BAY LATCH SPRING
32 33	1-791-150-11 4-643-381-01	FFC (JOG) INSIII.ATOR PAI.M (M)	94 95	A-8056-323-A 1-763-466-11 4-642-797-01 4-643-214-01	COMPLETE PWB CNX-74
34	4-642-819-01	HINGE FLAP	96	4-642-797-01	LATCH (KEY)
35 36	4-642-837-01	ASSY FLAP LOCK L LOCK PLATE L			
* 37	4-642-841-01	PLATE FLAP BASE ASSY FLAP LOCK R LOCK PLATE R LEVER L SCREW (M2) SERGIAL HEAD	98 99	4-643-382-02 4-641-726-01	INSULATOR HDD SCREW (M2), SPECIAL HEAD CABLE, DC JACK PC BOARD
38 39	X-4622-295-1 4-642-838-01	ASSY FLAP LOCK R LOCK PLATE R	101 102	1-791-178-11	CABLE, DC JACK PC BOARD CABLE, PC BOARD CONNECTION
40	4-642-839-01	LEVER L	103	4-642-840-01	
41	4-041-720-51	SCREW (MZ), SPECIAL READ	104	4-642-953-01	TAPE (KEY), SHIELD
42 43	X-4622-675-1 A-8045-662-A	ASSY HOU FLAP 2 ASSY BAY (FD)	* 105 106	4-642-955-01 4-643-916-01	INSULATOR BAY FPC CUSHION PSW A
44 * 45	4-642-811-01 4-642-956-01	FD BRKT UPPER INSULATOR FDD	107 108		CUSHION PSW B THERMAL SHEET NC
* 46	4-642-815-01	ASSY HOU FLAP 2 ASSY BAY (FD) FD BRKT UPPER INSULATOR FDD FD UNDER PLATE	109		THERMAL SHEET CP2
	4-642-814-01	FD GND PLATE	110	4-643-826-01	THERMAL SHEET NM
* 48 49	4-642-813-01 4-641-656-12	FD PLATE SCREW (M2.5), 0 PLATE P PWB, (FDD) FLEXIBLE	111 112		SPACER SW POWER ASSY SHIELD FLAP L
50 51	1-791-143-11 1-772-212-11	PWB, (FDD) FLEXIBLE 3.5" 3MODE FLOPPY DISK DRIVE	113	X-4622-372-1	ASSY SHIELD FLAP R
52			114 * 115	4-643-574-01 4-642-868-01	INSULATOR FAN
53			* 116	4-642-867-01	PLATE BAY A
54 56	X-4622-322-1	TAPPING, O NUMBER SPECIAL HEAD ASSY BEZEL DVD-ROM	117 118	4-643-918-01 4-644-052-01	
57	1-772-211-11	DVD-ROM (X4)  CD BRKT UPPER PWB, (CD-ROM) FLEXIBLE CD GND PLATE ASSY CD BRKT UNDER SCREW (M2) SPECIAL HEAD	* 120	4-642-869-01	
58 59	4-642-809-02	CD BRKT UPPER PWR (CD-ROM) FLEXTRIF	121 122		CUSHION BACK UP BATTERY
60	4-642-817-01	CD GND PLATE	123	4-645-178-03	SHIELD (LCD FPC)
61 62	x-4622-387-4 4-641-726-31	ASSY CD BRKT UNDER SCREW (M2), SPECIAL HEAD	124		CUSHION (KEY)
			125	4-643-879-01	TAPE PAD



# 5-2. LCD Section (XG18 MODEL)



Ref No	Part No.	Description
301 302 303 304	X-4622-549-1 1-418-557-21 4-643-410-01 4-635-274-01	ASSY HOU DISPLAY CTO
309 310	1-803-642-11 X-4622-512-1 X-4622-511-1 X-4622-550-1 4-642-807-01	PANEL, LCD HINGE ASSY CTO R HINGE ASSY CTO L ASSY HOU BEZEL CTO LATCH (LCD)
312 313 314 315 316	4-637-903-01 4-642-802-01 4-642-803-01 4-643-405-01 4-643-406-01	SPRING LATCH FLASH PANEL LED LENZ (A) SEAL LCD SIDE SCREW SEAL LCD FRONT SCREW
318 319	4-643-408-01 4-641-726-51	SEAL LCD FRONT SCREW (L) SEAL LCD SIDE SCREW (M2), SPECIAL HEAD +B M2 PANEL LOCK ASSY
324 325 326	4-642-856-01 4-643-409-01 4-641-726-21 4-642-852-11 4-642-829-03	CUSHION LATCH SCREW (M2) , SPECIAL HEAD +B M2
331 332	4-642-830-03 3-719-408-11 4-645-172-01 4-644-541-01 4-644-063-01	HEAT SPREADER LCD SPACER HINGE
335 336	4-644-292-02 4-645-890-01 4-644-484-01 3-039-037-01 4-642-852-31	TAPE LCD LABEL ID WASHER SCREW (M2X2.5) +B M2X5
339	4-645-872-01	TAPE FPC LCD
В8	7-628-254-20	SCREW +PS 2.6X8

Ref.No.	Part No.	<u>Description</u>
		ACCESSORIES *********
↑ 301 303 304 ↑	1-782-614-11 X-4622-412-1 A-8045-662-A X-4622-384-1 1-418-579-12	CORD, POWER WEIGHT SAVER ASSY ASSY BAY (FD) BAG, ASSY ACCESSORY ADAPTOR, A.C.
	1-528-935-11 1-791-149-12 4-646-645-01 4-646-637-01	PACK, LITHIUM ION BATTERY FDD-CABLE USER GUIDE XG18/19 READ ME FIRST XG18/19

Weight saver (1)



**303** ASSY BAY (FD) (1)



304 Accessory bag (1)



The components identified by mark ∆ or dotted line with mark ∆ are critical for safety.

Replace only with part number specified.

Les composants identifiés par une marque  $extstyle \Delta$  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.



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